

CLAIMS

1. A game system which generates an image, comprising:  
means which transforms a depth value of each pixel of an  
5 original image into a second depth value formed of lower bits  
I to J which are positioned lower than the most significant bit  
of the depth value;

means which sets an alpha value of each pixel to a value  
corresponding to the second depth value; and

10 means which generates an image based on the set alpha  
value.

2. The game system as defined in claim 1,  
wherein the original image is blended with a defocused  
15 image of the original image based on the alpha value set for  
each pixel.

3. The game system as defined in claim 2,  
wherein the defocused image of the original image is  
20 generated by setting the original image as a texture and  
shifting texture coordinates of a virtual object when the  
texture is mapped onto the virtual object by texel interpolation  
method.

25 4. The game system as defined in claim 1,  
wherein the second depth value is clamped into a given  
value depending on a bit value other than the bits I to J in

the depth value.

5. The game system as defined in claim 1,

wherein the depth value is set as an index number in a

5 lookup table for index color texture-mapping; and

wherein the depth value is transformed into the second depth value by performing index color texture-mapping on a virtual object by using the lookup table.

10 6. The game system as defined in claim 1, wherein:

bits M to N in the depth value are set as an index number in a first lookup table for index color texture-mapping;

the depth value is transformed into a third depth value by performing index color texture-mapping on a virtual object 15 by using the first lookup table;

bits K to L (where  $K \geq I \geq L > M \geq J \geq N$ ) in the depth value are set as an index number in a second lookup table for index color texture-mapping;

the depth value is transformed into a fourth depth value 20 by performing index color texture-mapping on a virtual object by using the second lookup table; and

the third and fourth depth values are used to determine the second depth value.

25 7. A game system which generates an image, comprising:

means which sets bits M to N in given image information as an index number in a first lookup table for index color

texture-mapping, and uses the first lookup table to perform index color texture-mapping on a virtual object to transform the image information into third image information;

means which sets bits K to L in the image information as 5 an index number in a second lookup table for index color texture-mapping, and uses the second lookup table to perform index color texture-mapping on a virtual object to transform the image information into fourth image information; and

means which determines second image information formed 10 of the bits I to J (where  $K \geq I \geq L > M \geq J \geq N$ ) in the image information based on the third and fourth image information.

8. The game system as defined in claim 5,

wherein the virtual object is a polygon having a size 15 equal to a size of a display screen.

9. The game system as defined in claim 7,

wherein the virtual object is a polygon having a size equal to a size of a display screen.

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10. The game system as defined in claim 5,

wherein the virtual object is a polygon having a size equal to a size of a block obtained by dividing a display screen into blocks.

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11. The game system as defined in claim 7,

wherein the virtual object is a polygon having a size

equal to a size of a block obtained by dividing a display screen into blocks.

12. A computer-usable program embodied on an information  
5 storage medium or in a carrier wave, comprising a processing  
routine for a computer to realize:

means which transforms a depth value of each pixel of an  
original image into a second depth value formed of lower bits  
I to J which are positioned lower than the most significant bit  
10 of the depth value;

means which sets an alpha value of each pixel to a value  
corresponding to the second depth value; and

means which generates an image based on the set alpha  
value.

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13. The program as defined in claim 12,

wherein the original image is blended with a defocused  
image of the original image based on the alpha value set for  
each pixel.

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14. The program as defined in claim 13,

wherein the defocused image of the original image is  
generated by setting the original image as a texture and  
shifting texture coordinates of a virtual object when the  
25 texture is mapped onto the virtual object by texel interpolation  
method.

15. The program as defined in claim 12,  
wherein the second depth value is clamped into a given  
value depending on a bit value other than the bits I to J in  
the depth value.

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16. The program as defined in claim 12,  
wherein the depth value is set as an index number in a  
lookup table for index color texture-mapping; and  
wherein the depth value is transformed into the second  
10 depth value by performing index color texture-mapping on a  
virtual object by using the lookup table.

17. The program as defined in claim 12, wherein:

15 bits M to N in the depth value are set as an index number  
in a first lookup table for index color texture-mapping;  
the depth value is transformed into a third depth value  
by performing index color texture-mapping on a virtual object  
by using the first lookup table;

20 bits K to L (where  $K \geq I \geq L > M \geq J \geq N$ ) in the depth  
value are set as an index number in a second lookup table for  
index color texture-mapping;

the depth value is transformed into a fourth depth value  
by performing index color texture-mapping on a virtual object  
by using the second lookup table; and

25 the third and fourth depth values are used to determine  
the second depth value.

18. A computer-usable program embodied on an information storage medium or in a carrier wave, comprising a processing routine for a computer to realize:

means which sets bits M to N in given image information  
5 as an index number in a first lookup table for index color texture-mapping, and uses the first lookup table to perform index color texture-mapping on a virtual object to transform the image information into third image information;

means which sets bits K to L in the image information as  
10 an index number in a second lookup table for index color texture-mapping, and uses the second lookup table to perform index color texture-mapping on a virtual object to transform the image information into fourth image information; and

means which determines second image information formed  
15 of the bits I to J (where  $K \geq I \geq L > M \geq J \geq N$ ) in the image information based on the third and fourth image information.

19. The program as defined in claim 16,

wherein the virtual object is a polygon having a size  
20 equal to a size of a display screen.

20. The program as defined in claim 18,

wherein the virtual object is a polygon having a size equal to a size of a display screen.

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21. The game system as defined in claim 16,

wherein the virtual object is a polygon having a size

equal to a size of a block obtained by dividing a display screen into blocks.

22. The program as defined in claim 18,

5 wherein the virtual object is a polygon having a size equal to a size of a block obtained by dividing a display screen into blocks.

23. A method of generating an image, comprising a step of:

10 transforming a depth value of each pixel of an original image into a second depth value formed of lower bits I to J which are positioned lower than the most significant bit of the depth value;

15 setting an alpha value of each pixel to a value corresponding to the second depth value; and generating an image based on the set alpha value.

24. The method as defined in claim 23,

wherein the original image is blended with a defocused 20 image of the original image based on the alpha value set for each pixel.

25. The method as defined in claim 24,

wherein the defocused image of the original image is 25 generated by setting the original image as a texture and shifting texture coordinates of a virtual object when the texture is mapped onto the virtual object by texel interpolation

method.

26. The method as defined in claim 23,  
wherein the second depth value is clamped into a given  
5 value depending on a bit value other than the bits I to J in  
the depth value.

27. The method as defined in claim 23,  
wherein the depth value is set as an index number in a  
10 lookup table for index color texture-mapping; and  
wherein the depth value is transformed into the second  
depth value by performing index color texture-mapping on a  
virtual object by using the lookup table.

15 28. The method as defined in claim 23, wherein:  
bits M to N in the depth value are set as an index number  
in a first lookup table for index color texture-mapping;  
the depth value is transformed into a third depth value  
by performing index color texture-mapping on a virtual object  
20 by using the first lookup table;  
bits K to L (where  $K \geq I \geq L > M \geq J \geq N$ ) in the depth  
value are set as an index number in a second lookup table for  
index color texture-mapping;  
the depth value is transformed into a fourth depth value  
25 by performing index color texture-mapping on a virtual object  
by using the second lookup table; and  
the third and fourth depth values are used to determine

the second depth value.

29. A method of generating an image, comprising a step of:  
setting bits M to N in given image information as an index

5 number in a first lookup table for index color texture-mapping;  
using the first lookup table to perform index color  
texture-mapping on a virtual object to transform the image  
information into third image information;

10 setting bits K to L in the image information as an index  
number in a second lookup table for index color texture-mapping;  
using the second lookup table to perform index color  
texture-mapping on a virtual object to transform the image  
information into fourth image information; and

15 determining second image information formed of the bits  
I to J (where  $K \geq I \geq L > M \geq J \geq N$ ) in the image information  
based on the third and fourth image information.

30. The method as defined in claim 27,

wherein the virtual object is a polygon having a size

20 equal to a size of a display screen.

31. The method as defined in claim 29,

wherein the virtual object is a polygon having a size  
equal to a size of a display screen.

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32. The method as defined in claim 27,

wherein the virtual object is a polygon having a size

equal to a size of a block obtained by dividing a display screen into blocks.

33. The method as defined in claim 29,

5 wherein the virtual object is a polygon having a size equal to a size of a block obtained by dividing a display screen into blocks.